of, in the same plane as, and directly in line with, the driver's right ear.

(6) With the vehicle's transmission in neutral gear, accelerate its engine to either its maximum governed engine speed, if it is equipped with an engine governor, or its speed at its maximum rated horsepower, if it is not equipped with an engine governor. Stabilize the engine at that speed.

(7) Observe the A-weighted sound level reading on the meter for the stabilized engine speed condition. Record that reading, if the reading has not been influenced by extraneous noise sources such as motor vehicles operating on adjacent roadways.

(8) Return the vehicle's engine speed to idle and repeat the procedures specified in paragraphs (c) (6) and (7) of this section until two maximum sound levels within 2 dB of each other are recorded. Numerically average those two maximum sound level readings.

(9) The average obtained in accordance with paragraph (c)(8) of this section is the vehicle's interior sound level at the driver's seating position for the purpose of determining whether the vehicle conforms to the rule in paragraph (b) of this section. However, a 2 dB tolerance over the sound level limitation specified in that paragraph is permitted to allow for variations in test conditions and variations in the capabilities of meters.

(10) If the motor vehicle's engine radiator fan drive is equipped with a clutch or similar device that automatically either reduces the rotational speed of the fan or completely disengages the fan from its power source in response to reduced engine cooling loads the vehicle may be parked before testing with its engine running at high idle or any other speed the operator may choose, for sufficient time but not more than 10 minutes, to permit the engine radiator fan to automatically disengage.

(d) Vehicles manufactured before October 1, 1974, and operated wholly within the State of Hawaii, need not comply with this section until April 1, 1976.

[38 FR 30881, Nov. 8, 1973, as amended at 40 FR 32336, Aug. 1, 1975; 41 FR 28268, July 9, 1976]

Subpart H—Emergency Equipment

§ 393.95 Emergency equipment on all power units.

Except for a lightweight vehicle, every bus, truck, truck-tractor, and every driven vehicle in driveaway-towaway operation must be equipped as follows:

(a) *Fire extinguisher.* (1) Except as provided in paragraph (a)(4) of this section, every power unit must be equipped with a fire extinguisher that is properly filled and located so that it is readily accessible for use. The fire extinguisher must be securely mounted on the vehicle. The fire extinguisher must be designed, constructed, and maintained to permit visual determination of whether it is fully charged. The fire extinguisher must have an extinguishing agent that does not need protection from freezing. The fire extinguisher must not use a vaporizing liquid that gives off vapors more toxic than those produced by the substances shown as having a toxicity rating of 5 or 6 in the Underwriters' Laboratories ''Classification of Comparative Life Hazard of Gases and Vapors.'' [1]

(2)(i) Before July 1, 1971, a power unit that is used to transport hazardous materials must be equipped with a fire extinguisher having an Underwriters' Laboratories rating [2] of 4 B:C or more. On and after July 1, 1971, a power unit that is used to transport hazardous materials must be equipped with a fire extinguisher having an Underwriters' Laboratories rating [2] of 10 B:C or more.

(ii) Before January 1, 1973, a power unit that is not used to transport hazardous materials must be equipped with a fire extinguisher having an Underwriters' Laboratories rating [2] of 4 B:C or more. On and after January 1, 1973, a power unit that is not used to

[1] Copies of the Classification can be obtained by writing to Underwriters' Laboratories, Inc., 205 East Ohio Street, Chicago, Ill. 60611.

[2] Underwriters' Laboratories ratings are given to fire entinguishers under the standards of Underwriters' Laboratories, Inc., 205 East Ohio Street, Chicago, Ill. 60611. Extinguishers must conform to the standards in effect on the date of manufacture or on Jan. 1, 1969, whichever is earlier.

transport hazardous materials must be equipped with either—

(A) A fire extinguisher having an Underwriters' Laboratories rating[2] of 5 B:C or more; or

(B) Two fire extinguishers, each of which has an Underwriters' Laboratories rating[2] of 4 B:C or more.

(iii) Each fire extinguisher required by this subparagraph must be labeled or marked with its Underwriters' Laboratories rating[2] and must meet the requirements of paragraph (a)(1) of this section.

(3) For purposes of this paragraph, a power unit is used to transport hazardous materials only if the power unit or a motor vehicle towed by the power unit must be marked or placarded in accordance with §177.823 of this title.

(4) This paragraph does not apply to the driven unit in a driveaway-towaway operation.

(b) [Reserved]

(c) *Spare fuses.* At least one spare fuse or other overload protective device, if the devices used are not of a reset type, for each kind and size used. In driveaway-towaway operations, spares located on any one of the vehicles will be deemed adequate.

(d)–(e) [Reserved]

(f) *Warning devices for stopped vehicles.* Except as provided in paragraph (g) of this section, one of the following combinations of warning devices:

(1) *Vehicles equipped with warning devices before January 1, 1974.* Warning devices specified below may be used until replacements are necessary:

(i) Three liquid-burning emergency flares which satisfy the requirements of SAE Standard J597, ''Liquid Burning Emergency Flares,'' and three fusees and two red flags; or

(ii) Three electric emergency lanterns which satisfy the requirements of SAE Standard J596, ''Electric Emergency Lanterns,'' and two red flags; or

(iii) Three red emergency reflectors which satisfy the requirements of paragraph (i) of this section, and two red flags; or

(iv) Three red emergency reflective triangles which satisfy the requirements of paragraph (h) of this section; or

(v) Three bidirectional emergency reflective triangles that conform to the requirements of Federal Motor Vehicle Safety Standard No. 125, §571.125 of this title.

(2) *Vehicles equipped with warning devices on and after January 1, 1974.* (i) Three bidirectional emergency reflective triangles that conform to the requirements of Federal Motor Vehicle Safety Standard No. 125, §571.125 of this title; or

(ii) At least 6 fusees or 3 liquid-burning flares. The vehicle must have as many additional fusees or liquid-burning flares as are necessary to satisfy the requirements of §392.22.

(3) *Supplemental warning devices.* Other warning devices may be used in addition to, but not in lieu of, the required warning devices, provided those warning devices do not decrease the effectiveness of the required warning devices.

(g) *Restrictions on the use of flame-producing devices.* Liquid-burning flares, fusees, oil lanterns, or any signal produced by a flame shall not be carried on any commercial motor vehicle transporting Division 1.1, 1.2, 1.3 (explosives) hazardous materials; any cargo tank motor vehicle used for the transportation of Division 2.1 (flammable gas) or Class 3 (flammable liquid) hazardous materials whether loaded or empty; or any commercial motor vehicle using compressed gas as a motor fuel.

(h) *Requirements for emergency reflective triangles manufactured before January 1, 1974.* (1) Each reflector shall be a collapsible equilateral triangle, with legs not less than 17 inches long and not less than 2 inches wide. The front and back of the exposed leg surfaces shall be covered with red reflective material not less than one half inch in width. The reflective surface, front and back, shall be approximately parallel. When placed in position, one point of the triangle shall be upward. The area within the sides of the triangle shall be open.

(2) *Reflective material:* The reflecting material covering the leg of the equilateral triangle shall comply either with:

(i) The requirements for reflex-reflector elements made of red methyl-methacrylate plastic material, meeting the color, sealing, minimum candle-power,

wind test, vibration test, and corrosion resistance test of section 3 and 4 of Federal Specification RR–R–1185, dated November 17, 1966, or

(ii) The requirements for red reflective sheeting of Federal Specification L–S–300, dated September 7, 1965, except that the aggregate candlepower of the assembled triangle, in one direction, shall be not less than eight when measured at 0.2° divergence angle and −4° incidence angle, and not less than 80 percent of the candlepower specified for 1 square foot of material at all other angles shown in Table II, Reflective Intensity Values, of L–S–300.

(3) *Reflective surfaces alignment:* Every reflective triangle shall be so constructed that, when the triangle is properly placed, the reflective surfaces shall be in a plane perpendicular to the plane of the roadway surface with a permissible tolerance of ±10°. Reflective triangles which are collapsible shall be provided with means for holding the reflective surfaces within the required tolerance. Such holding means shall be readily capable of adjustment without the use of tools or special equipment.

(4) *Reflectors mechanical adequacy:* Every reflective triangle shall be of such weight and dimensions as to remain stationary when subjected to a 40 mile per hour wind when properly placed on any clean, dry paved road surface. The reflective triangle shall be so constructed as to withstand reasonable shocks without breakage.

(5) *Reflectors, incorporation in holding device:* Each set of reflective triangles shall be adequately protected by enclosure in a box, rack, or other adequate container specially designed and constructed so that the reflectors may be readily extracted for use.

(6) *Certification:* Every red emergency reflective triangle designed and constructed to comply with these requirements shall be plainly marked with the certification of the manufacturer that it complies therewith.

(i) *Requirements for red emergency reflectors.* Each red emergency reflector shall conform in all respects to the following requirements:

(1) *Reflecting elements required.* Each reflector shall be composed of at least two reflecting elements or surfaces on each side, front and back. The reflecting elements, front and back, shall be approximately parallel.

(2) *Reflecting elements to be Class A.* Each reflecting element or surface shall meet the requirement for a red Class A reflector contained in the SAE Recommended Practice[1] ''Reflex Reflectors.'' The aggregate candlepower output of all the reflecting elements or surface in one direction shall not be less than 12 when tested in a perpendicular position with observation at one-third degree as specified in the Photometric Test contained in the above-mentioned Recommended Practice.

(3) *Reflecting surfaces, protection.* If the reflector or the reflecting elements are so designed or constructed that the reflecting surfaces would be adversely affected by dust, soot, or other foreign matter or contacts with other parts of the reflector or its container, then such reflecting surfaces shall be adequately sealed within the body of the reflector.

(4) *Reflecting surfaces to be perpendicular.* Every reflector shall be so constructed that, when the reflector is properly placed, every reflecting element or surface is in a plane perpendicular to the plane of the roadway surface. Reflectors which are collapsible shall be provided with means for locking the reflector elements or surfaces in the required position; such locking means shall be readily capable of adjustment without the use of tools or special equipment.

(5) *Reflectors, mechanical adequacy.* Every reflector shall be of such weight and dimensions as to remain stationary when subjected to a 40 mile per hour wind when properly placed on any clean, dry, paved road surface. The reflector shall be so constructed as to withstand reasonable shocks without breakage.

(6) *Reflectors, incorporation on holding device.* Each set of reflectors and the reflecting elements or surfaces incorporated therein shall be adequately protected by enclosure in a box, rack, or other adequate container specially designed and constructed so that the

[1] See footnote 1 to § 393.24(c).

reflectors may be readily extracted for use.

(7) *Certification.* Every red emergency reflector designed and constructed to comply with these requirements shall be plainly marked with the certification of the manufacturer that it complies therewith.

(j) *Requirements for fusees and liquid-burning flares.* Each fusee shall be capable of burning for 30 minutes, and each liquid-burning flare shall contain enough fuel to burn continuously for at least 60 minutes. Fusees and liquid-burning flares shall conform to the requirements of Underwriters Laboratories, Inc., UL No. 912, Highway Emergency Signals, Fourth Edition, July 30, 1979, (with an amendment dated November 9, 1981). (See §393.7(c) for information on the incorporation by reference and availability of this document.) Each fusee and liquid-burning flare shall be marked with the UL symbol in accordance with the requirements of UL 912.

(k) *Requirements for red flags.* Red flags shall be not less than 12 inches square, with standards adequate to maintain the flags in an upright position.

(49 U.S.C. 304, 1655; 49 CFR 1.48(b) and 301.60)

[33 FR 19735, Dec. 25, 1968, as amended at 35 FR 13019, Aug. 15, 1970; 35 FR 14619, Sept. 18, 1970; 37 FR 17176, Aug. 25, 1972; 40 FR 10685, Mar. 7, 1975; 41 FR 53031, Dec. 3, 1976; 47 FR 47837, Oct. 28, 1982; 59 FR 34712, July 6, 1994; 67 FR 61225, Sept. 27, 2002]

Subpart I—Protection Against Shifting and Falling Cargo

SOURCE: 67 FR 61225, Sept. 27, 2002, unless otherwise noted.

§393.100 Which types of commercial motor vehicles are subject to the cargo securement standards of this subpart, and what general requirements apply?

(a) *Applicability.* The rules in this subpart are applicable to trucks, truck tractors, semitrailers, full trailers, and pole trailers.

(b) *Prevention against loss of load.* Each commercial motor vehicle must, when transporting cargo on public roads, be loaded and equipped, and the cargo secured, in accordance with this subpart to prevent the cargo from leaking, spilling, blowing or falling from the motor vehicle.

(c) *Prevention against shifting of load.* Cargo must be contained, immobilized or secured in accordance with this subpart to prevent shifting upon or within the vehicle to such an extent that the vehicle's stability or maneuverability is adversely affected.

§393.102 What are the minimum performance criteria for cargo securement devices and systems?

(a) *Performance criteria.* Cargo securement devices and systems must be capable of withstanding the following three forces, applied separately:

(1) 0.8 g deceleration in the forward direction;

(2) 0.5 g acceleration in the rearward direction; and

(3) 0.5 g acceleration in a lateral direction.

(b) *Performance criteria for devices to prevent vertical movement of loads that are not contained within the structure of the vehicle.* Securement systems must provide a downward force equivalent to at least 20 percent of the weight of the article of cargo if the article is not fully contained within the structure of the vehicle. If the article is fully contained within the structure of the vehicle, it may be secured in accordance with §393.106(b).

(c) *Prohibition on exceeding working load limits.* Cargo securement devices and systems must be designed, installed, and maintained to ensure that the maximum forces acting on the devices or systems do not exceed the working load limit for the devices under the conditions listed in paragraphs (a) and (b) of this section.

(d) *Equivalent means of securement.* Cargo that is immobilized, or secured in accordance with the applicable requirements of §§393.104 through 393.136, is considered as meeting the performance criteria of this section.

§393.104 What standards must cargo securement devices and systems meet in order to satisfy the requirements of this subpart?

(a) *General.* All devices and systems used to secure cargo to or within a vehicle must be capable of meeting the requirements of §393.102.